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**OFFICE OF
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OKLAHOMA STATE UNIVERSITY

**PROGRESS
REPORT**

TO
NATIONAL AERONAUTICS
AND
SPACE ADMINISTRATION

A PROGRAM FOR SELECTING, EDITING
AND DISSEMINATING ENGINEERING
AND SCIENTIFIC SUBJECT MATTER
FROM NASA TECHNICAL REPORTS

REPORT NO. ER71-I-9

A PILOT PROGRAM FOR SELECTING, EDITING, AND
DISSEMINATING ENGINEERING AND SCIENTIFIC EDUCATIONAL
SUBJECT MATTER FROM NASA TECHNICAL REPORTS

PROGRESS REPORT

November 1, 1969 through August 31, 1970

COLLEGE OF ENGINEERING
OKLAHOMA STATE UNIVERSITY
STILLWATER, OKLAHOMA

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CONTENTS

<u>Section</u>	<u>Page</u>
I. INTRODUCTION.	1
II. INSTRUCTIONAL MONOGRAPHS.	2
A. Preparation of Instructional Monographs.	2
B. Dissemination of Instructional Monographs.	3
C. Evaluation of Instructional Monographs	5
D. Summary - Instructional Monograph Dissemination and Evaluation	5
III. PROGRAM SUPPORT - INSTRUCTIONAL MONOGRAPHS.	8
A. American Society for Engineering Education	8
B. Army Research Office	8
IV. VISUAL BRIEFS	9
A. Dissemination.	9
B. Evaluations.	9

TABLES

<u>Table</u>	<u>Page</u>
I. Monograph Preparation	3
II. Instructional Monograph Dissemination and Evaluation. . . .	7

ILLUSTRATIONS

<u>Figure</u>	<u>Page</u>
1. Instructor's Monographs Requested.	4
2. Monograph Evaluation Statistics.	6
3. Visual Brief Evaluation Statistics	10

APPENDICES

<u>Appendix</u>	<u>Page</u>
I. University Monograph Dissemination Statistics Through June 1, 1970.	12
II. Industrial Monograph Dissemination Statistics Through June 1, 1970.	13
III. Visual Brief Dissemination Statistics Through June 1, 1970.	14

PROGRESS REPORT

I. INTRODUCTION

During this report period three additional Instructional Monographs have been written by the authors. One other Instructional Monograph is being developed.

The proposal for two years funding of a program for continuation of Instructional Monograph preparation submitted to the American Society for Engineering Education was approved by ASEE but turned down by NSF. Discussion with ASEE is being continued in an attempt to develop and define ASEE's role in Instructional Monograph production and dissemination.

The Army Research Office approved the funding of a related program entitled "Pilot Program in Technology Transfer Through Educational Monographs for Self-Study". This program has been progressing well using the principles already developed in this NASA program.

II. INSTRUCTIONAL MONOGRAPHS

A. Preparation of Instructional Monographs.

During this report period the Monograph Authors completed the research and preliminary dialogue on three Instructional Monographs.

They were:

TD-7, Equations of State, by: Wayne C. Edmister, Chemical Engineering, Oklahoma State University

CS-11, The Use of State-Vector Feedback to Improve System Stability, by: A. W. Bennett, Electrical Engineering, Virginia Polytechnic Institute

CS-12, An Initial Value Method for Optimal Control Calculations, by: A. W. Bennett, Electrical Engineering, Virginia Polytechnic Institute

Instructional Monograph TD-7 is being typed for final reproduction and distribution. Instructional Monograph CS-11 is scheduled for final typing. Instructional Monograph CS-12, has been returned to the author along with CS-9 and CS-10. These three Monographs were returned for the authors and editor to review them for possible revision as a result of the NSF critique of the Monograph program.

One additional Monograph is being prepared by Nicholls Professor Wayne C. Edmister and Mr. B. I. Lee, Ph.D. candidate. This Monograph, TD-10, will be entitled, "COMPOSITION AND ENTHALPY PREDICTIONS FOR COEXISTING VAPOR AND LIQUID MIXTURES". It will be completed sometime in the late fall or winter. Some of the development of material in this Monograph is a part of Mr. Lee's graduate research. The dialogue portion of the Monograph will be delayed until Mr. Lee's research is completed.

The information in Table I summarizes the Instructional Monograph preparation of the program to date.

TABLE I, MONOGRAPH PREPARATION

	<u>Number of Monographs</u>
1. Ready for distribution	24
2. Being typed for reproduction	2
3. Completed-being reviewed	3
4. Being researched-written	1
5. Developed - not reproduced because of material technical difficulties	<u>4</u>
	34

No additional Instructional Monograph will be started. Emphasis will be placed on the completion of the documents now in progress, as shown in items 1 through 4, Table I.

B. Dissemination of Instructional Monographs.

An active publicity program was not planned during this portion of the NASA Pilot Program. The requests for Instructional Monographs received during the period were generated by previous publicity, previous users, or referrals.

A total of 86 instructor copies were requested during this reporting period. Figure 1 illustrates the instructor copies requested at the end of each reporting period. The Instructional Monographs have been requested by 281 professors in 118 universities which are located in 39 states of the United States and in 5 foreign countries. A total of 1,770 instructor copies and 7,243 student copies have been mailed to these educators. A total of 845 instructor copies and 166 student

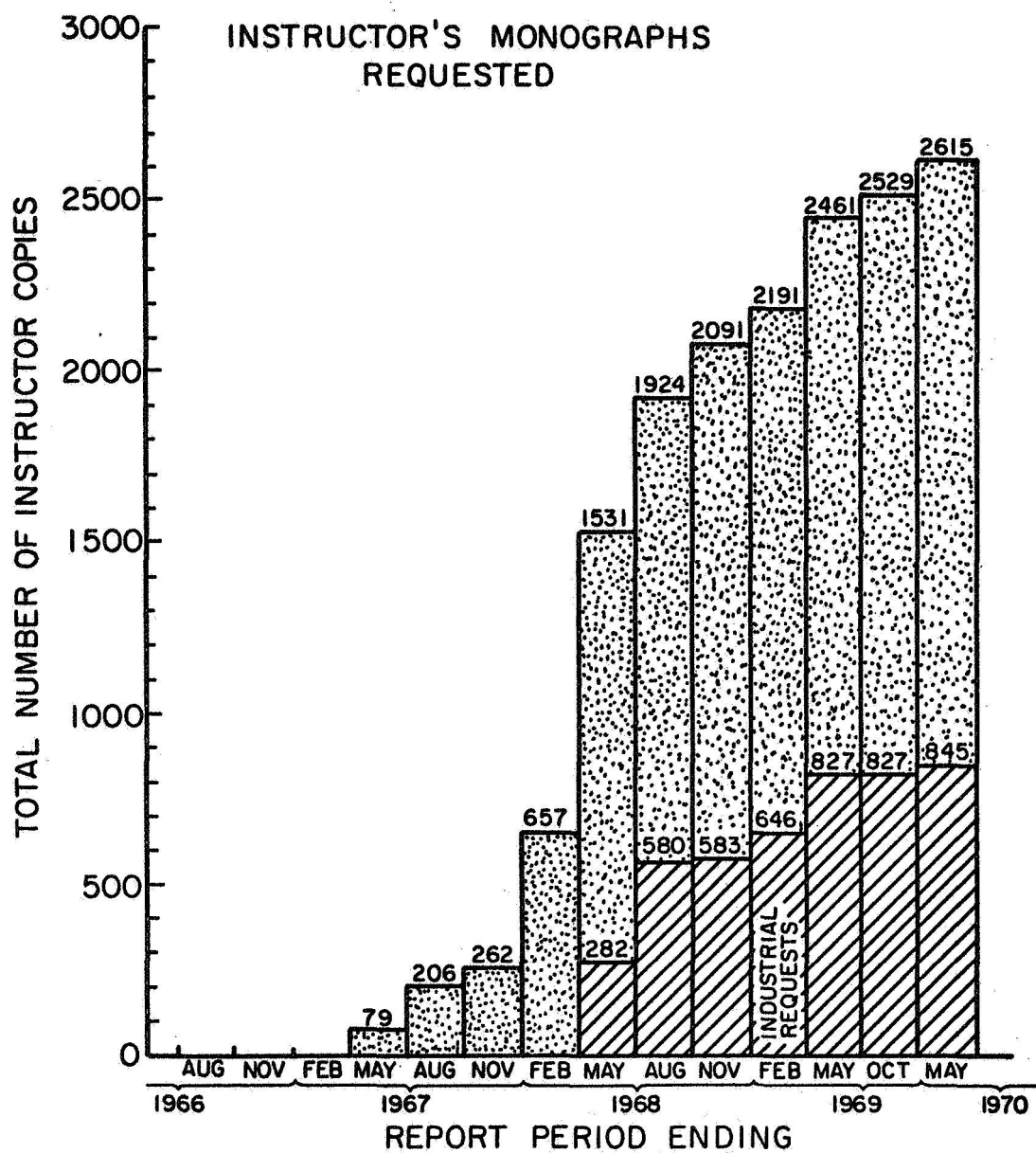


Figure 1.

copies have been requested by practicing engineers in 65 different industrial organizations.

C. Evaluation of Instructional Monographs.

A total of 302 evaluation forms have been returned by 93 professors representing 57 universities located in 30 states and 69 practicing engineers working in 10 industrial organizations. The number of completed evaluations by specific Instructional Monographs is shown in Figure 2. The number of evaluations by specific Instructional Monograph received from educators is shown in Appendix I and for practicing engineers in Appendix II.

D. Summary - Instructional Monograph Dissemination and Evaluation.

The following table summarizes the dissemination and evaluation statistics for the NASA Pilot Program. The statistics illustrate the good response that has been received from individuals evaluating the existing Instructional Monographs. Thirty-three percent of the professors and 45% of the practicing engineers who have requested Instructional Monographs for review, classroom use or self-study have returned one or more evaluations. The total response on the evaluations: 37% of all individuals requesting Monographs returned one or more evaluations.

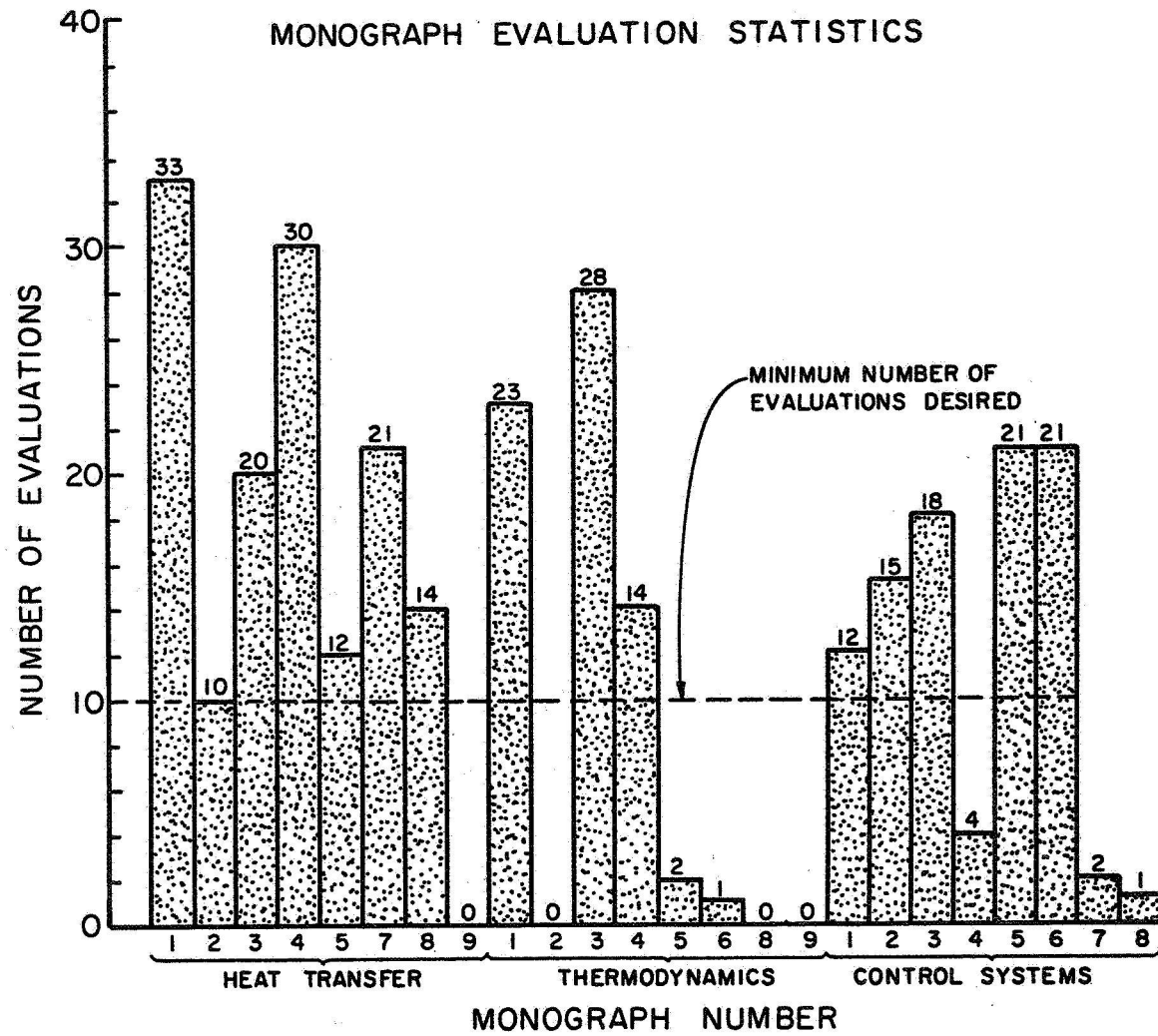


Figure 2.

TABLE II
INSTRUCTIONAL MONOGRAPH DISSEMINATION AND EVALUATION

<u>Dissemination of Monographs</u>	<u>University</u>	<u>Industry</u>	<u>Total</u>
A. Instructor copies mailed	1,770	845	2,615
B. Student copies mailed	7,243	166	7,409
C. Professors requesting Monographs	281		
in Universities	118		
in States	39		
in Foreign Countries	5		
D. Practicing Engineers requesting Mono-		156	
graphs in Industrial Organizations		65	
<u>Evaluations Returned</u>	<u>University</u>	<u>Industry</u>	<u>Total</u>
A. Number of evaluations returned	197	105	302
B. Professors returning evaluations	93		
in Universities	57		
in States	30		
in Foreign Countries	2		
C. Practicing Engineers returning Evalua-		69	
tions in Industrial Organizations		10	

III. PROGRAM SUPPORT - INSTRUCTIONAL MONOGRAPHS

A. American Society for Engineering Education.

The National Science Foundation turned down the proposal for support of an Instructional Monograph program submitted by the American Society for Engineering Education. After receiving the notification that NSF was not going to fund the program, Dr. Kenneth A. McCollom met with the Projects Board, ASEE, to further discuss the program, its need in Engineering education and ASEE's role. Our discussions with ASEE have had the following theme:

One of ASEE's functions is to consider the needs of engineering education and to determine the best manner in which to satisfy those legitimate needs. Instructional Monographs appear to fill a critical need in engineering education in the immediate future. Instructional Monographs having the endorsement of the ASEE would receive more careful consideration of potential users than the same quality material produced by an individual engineering college.

A letter to the American Society for Engineering Education outlined the above as ASEE's possible role in the program. The Instructional Monograph program is an agenda topic for the ASEE Projects Unit's September, 1970, meeting.

B. Army Research Office.

Oklahoma State University program with ARO entitled, "A PILOT PROGRAM IN EDUCATIONAL MONOGRAPHS THROUGH SELF-STUDY" has progressed well. Several of the Instructional Monographs have been written and have been reviewed by Army Laboratory personnel. The self-study phase of the program will be initiated in the fall and winter. It will be spring of 1971 before any results are available in this program.

IV. VISUAL BRIEFS

A. Dissemination.

This portion of the program has remained static during this report period.

A total of 300 requests to use the technical films have been received. There have been no requests received during this period. Film users have been slow in returning the film. Letters will be written to these individuals to encourage them to return the films. Appendix III shows the statistics on the technical films mailed to requestors.

B. Evaluations.

A total of 144 evaluations have been received. Figure 3 illustrates the number of evaluations received for each Visual Brief. Seventeen Visual Briefs have been evaluated by five or more users; five evaluations for each Visual Brief were specified in the Statement of Work.

As previously reported, Visual Briefs are not requested as frequently as Instructional Monographs. However, they are favorably received by the users.

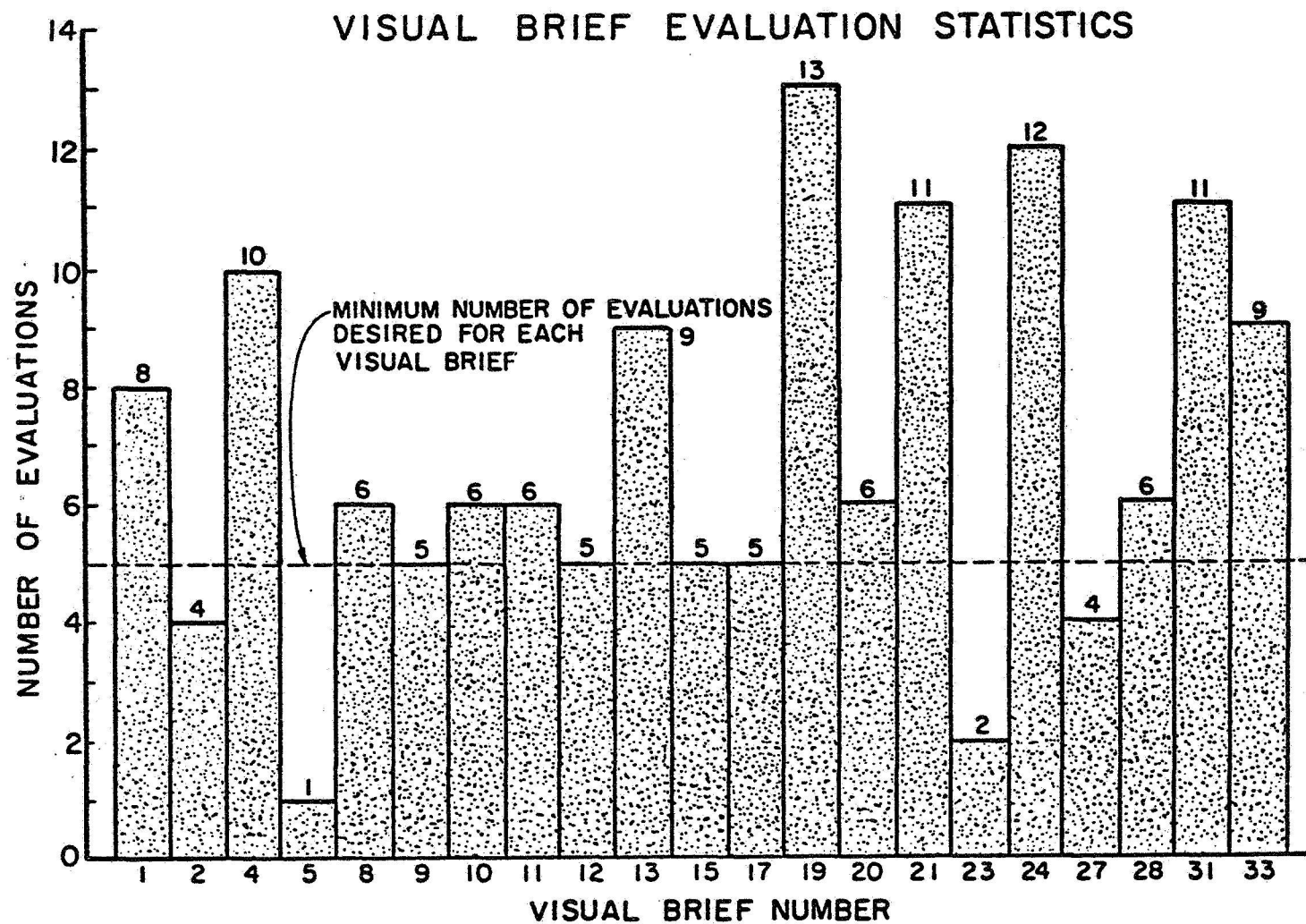


Figure 3

APPENDICES

APPENDIX I

UNIVERSITY MONOGRAPH DISSEMINATION
STATISTICS THROUGH JUNE 1, 1970

<u>Monograph Number</u>	<u>Instructor's Copies Sent</u>	<u>Student's Copies Sent</u>	<u>Evaluations Received</u>
CS-1	71	273	7
CS-2	94	636	13
CS-3	88	511	13
CS-4	104	410	2
CS-5	113	478	15
CS-6	121	517	15
CS-7	7	50	2
CS-8	7	50	1
HT-1	151	648	21
HT-2	93	237	7
HT-3	125	626	17
HT-4	116	608	26
HT-5	109	182	7
HT-7	101	288	8
HT-8	85	433	7
HT-9	5	1	0
TD-1	110	446	12
TD-2	10	42	0
TD-3	118	439	15
TD-4	87	246	7
TD-5	24	77	1
TD-6	15	43	1
TD-8	10	1	0
TD-9	3	1	0
	<u>1,770</u>	<u>7,243</u>	<u>197</u>

APPENDIX II

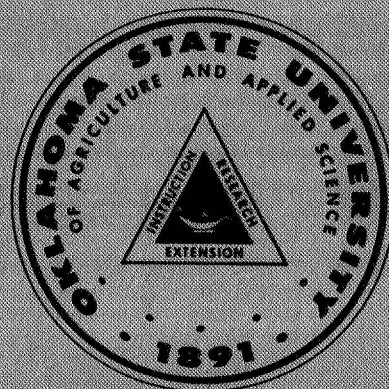
INDUSTRIAL MONOGRAPH DISSEMINATION
STATISTICS THROUGH June 1, 1970Dissemination Summary by Monograph Number

<u>Monograph Number</u>	<u>Instructor's Copies Sent</u>	<u>Student's Copies Sent</u>	<u>Evaluations Received</u>
CS-1	30	0	5
CS-2	25	0	2
CS-3	44	0	5
CS-4	42	0	2
CS-5	33	0	6
CS-6	44	0	6
CS-7	1	0	0
CS-8	2	0	0
HT-1	52	16	12
HT-2	35	15	3
HT-3	44	15	3
HT-4	37	15	4
HT-5	55	15	5
HT-7	82	15	13
HT-8	64	15	7
HT-9	1	0	0
TD-1	47	15	11
TD-2	16	0	0
TD-3	90	15	13
TD-4	39	0	7
TD-5	39	15	1
TD-6	9	0	0
TD-8	14	0	0
TD-9	0	0	0
	<u>845</u>	<u>166</u>	<u>105</u>

APPENDIX III

VISUAL BRIEF DISSEMINATION STATISTICS
THROUGH JUNE 1, 1970

<u>Visual Brief Number</u>	<u>Number Sent</u>	<u>Unfilled Requests</u>	<u>Evaluations Received</u>
VB- 1	11	0	8
VB- 2	5	1	4
VB- 4	20	5	10
VB- 5	11	0	1
VB- 8	16	8	6
VB- 9	10	0	5
VB-10	19	1	6
VB-11	9	1	6
VB-12	15	3	5
VB-13	22	7	9
VB-15	12	0	5
VB-17	9	0	5
VB-19	20	0	13
VB-20	9	1	6
VB-21	11	1	11
VB-23	6	0	2
VB-24	20	0	12
VB-27	9	0	4
VB-28	9	0	6
VB-31	17	0	11
VB-33	<u>13</u>	<u>0</u>	<u>9</u>
	273	27	144



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